

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,858,206 B2
DATED : February 22, 2005
INVENTOR(S) : Emil D. Kakkis

Page 1 of 7

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page.

Item [*] Notice, insert -- This patent is subject to a terminal disclaimer. --.

Item [63], **Related U.S. Application Data**, insert -- , now U.S. Patent No. 6,426,208. -- after "July 12, 1999".

Columns 29-40.

Please delete the sequence listing as published and replace with attached.

Column 41.

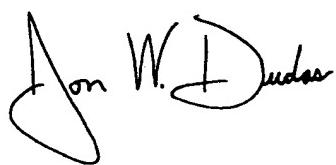
Line 65, delete "flex ion" and insert -- flexion --.

Column 44.

Line 24, delete "hypepea" and insert -- hypopnea --.

Signed and Sealed this

Twenty-eighth Day of February, 2006



JON W. DUDAS
Director of the United States Patent and Trademark Office

SEQUENCE LISTING

<110> Emil D. Kakkis
Becky Tanamachi

<120> Recombinant Alpha-L-Iduronidase, Methods
for Producing and Purifying the Same and Methods for
Treating Diseases Caused by Deficiencies Thereof

<130> 08000051US00

<140> 09/439,923
<141> 1999-11-12

<160> 2

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 6200

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (15)

1990-1998, 1999-2007

5600

gatggatccgg gagatcccccc	gatccccctat ggtcgactct cagtcacaatc tgctctgtatg	60
ccgcataat aaggcagtat	ctgtccctcg cttgtgtgtt ggagggtcgct gaggtagtgcg	120
cgagcaaaat ttaagetaca	acaaggcaag gcttgcaccga caattgcatg aagaatctgc	180
ttagggtag gcgtttgcg	ctgttcgcg atgtacgggc catgatatacg cgttgacatt	240
gattattgac tagttattaa	tagtaatcaa ttacgggtc attagttcat agccccatata	300
tggagttccg cggttacataa	cttacggtaa atggcccgc tggctgaccg cccaaacgacc	360
cccgcattt gacgtcaata	atgacgtatg ttcccatagt aacgccaata gggactttcc	420
attgacgtca atgggtggac	tatttacggt aaactgccc a cttggcagta catcaagtgt	480
atcatatgcc aagtacgccc	cctattgacg tcaatgacgg taaatggccc gcctggcatt	540
atgcccagta catgaccta	tgggactttc ctacttggca gtacatctac gtattagtca	600
tegttattac catggtgatg	cgggtttggc agtacateaa tgggcgtgga tagcgggtttg	660
actcacgggg atttccaagt	ctccacccca ttgacgtcaa tgggagtttgc ttttggcacc	720
aaaatcaacg ggactttcca	aaatgtcgta acaactccgc cccattgacg caaatggcgc	780
gttaggcgtgt acgggtggag	gtcttatataa gcagagctct ctggctaaact agagaaccca	840
ctgtttaact ggcttatcga	aattaatacg actcactata gggagaccca agcttgcag	900
aattccctcg gctgtacag	tgtgtccagc gtcctgcctg gctgtgtca ggcgttggaaac	960
agtggcgcat cattcaagtg	cacagttacc catccgttgt ctggcacctt aactggcaca	1020
attgccaag tcacagggtga	gctcagatgc ataccaggac attgtatgac gttccctgtct	1080
cacatgcctg cttttttctt	ataatacaga tggtcaacta actgtctcatg tccttatatc	1140
acagagggaa attggagcta	tctgagggaaac tgcccagaag ggaagggcag aggggtcttg	1200
ctcttcctgt ctgagccata	actctttttt ctacatccca gtgaacacct tccccacccca	1260
ggtccacctg taccggcgc	cgtcggagga getggccctg aatgagctt tgcctgtgac	1320
atgcctgtgt cgagctttca	acccttaaaa agtgcgtgtt cgatggctgc atggaaatgaa	1380
ggagctgtcc ccagaaaagct	accttagtgtt tgagccccata aaggggccaa gcgaggggagc	1440
caccacctac ctggtgacaa	gcgtgttgcg tgcgtatcgt gaaagcttga tatcgaaatc	1500
cgaggqcqqa accqqcqatq	caqccccqaq ccccccqatc cccqagccacq cotogcc atq	1560

Met
1

cgt ccc ctg cgc ccc cgc gcc gcg ctg ctg gcg ctc ctg gcc tcg ctc 1608
Arg Pro Leu Arg Pro Arg Ala Ala Leu Ileu Ala Leu Leu Ala Ser Leu

	5	10	15	
ctg gcc gcg ccc ccg gtg gcc ccg gag gcc ccg cac ctg gtg cat Leu Ala Ala Pro Pro Val Ala Pro Ala Glu Ala Pro His Leu Val His	20	25	30	1656
gtg gac gcg gcc cgc gcg ctg tgg ccc ctg cgg cgc ttc tgg agg agc Val Asp Ala Ala Arg Ala Leu Trp Pro Leu Arg Arg Phe Trp Arg Ser	35	40	45	1704
aca ggc ttc tgc ccc ccg ctg cca cac agc cag gct gac cag tac gtc Thr Gly Phe Cys Pro Pro Leu Pro His Ser Gln Ala Asp Gln Tyr Val	50	55	60	1752
ctc agc tgg gac cag cag ctc aac ctc gcc tat gtg ggc gcc gtc cct Leu Ser Trp Asp Gln Leu Asn Leu Ala Tyr Val Gly Ala Val Pro	70	75	80	1800
cac cgc ggc atc aag cag gtc cgg acc cac tgg ctg ctg gag ctt gtc His Arg Gly Ile Lys Gln Val Arg Thr His Trp Leu Leu Glu Leu Val	85	90	95	1848
acc acc agg ggg tcc act gga cgg ggc ctg agc tac aac ttc acc cac Thr Thr Arg Gly Ser Thr Gly Arg Gly Leu Ser Tyr Asn Phe Thr His	100	105	110	1896
ctg gac ggg tac ctg gac ctt ctc agg gag aac cag ctc ctc cca ggg Leu Asp Gly Tyr Leu Asp Leu Leu Arg Glu Asn Gln Leu Leu Pro Gly	115	120	125	1944
ttt gag ctg atg ggc agc gcc tcg ggc cac ttc act gac ttt gag gac Phe Glu Leu Met Gly Ser Ala Ser Gly His Phe Thr Asp Phe Glu Asp	130	135	140	1992
aag cag cag gtg ttt gag tgg aag gac ttg gtc tcc agc ctg gcc agg Lys Gln Gln Val Phe Glu Trp Lys Asp Leu Val Ser Ser Leu Ala Arg	150	155	160	2040
aga tac atc ggt agg tac gga ctg gcg cat gtt tcc aag tgg aac ttc Arg Tyr Ile Gly Arg Tyr Gly Leu Ala His Val Ser Lys Trp Asn Phe	165	170	175	2088
gag acg tgg aat gag cca gac cac cac gac ttt gac aac gtc tcc atg Glu Thr Trp Asn Glu Pro Asp His His Asp Phe Asp Asn Val Ser Met	180	185	190	2136
acc atg caa ggc ttc ctg aac tac tac gat gcc tgc tcg gag ggt ctg Thr Met Gln Gly Phe Leu Asn Tyr Tyr Asp Ala Cys Ser Glu Gly Leu	195	200	205	2184
cgc gcc gcc agc ccc gcc ctg cgg ctg gga ggc ccc ggc gac tcc ttc Arg Ala Ala Ser Pro Ala Leu Arg Leu Gly Gly Pro Gly Asp Ser Phe	210	215	220	2232
cac agg cca ccg cga tcc ccg ctg agc tgg ggc ctc ctg cgc cac tgc His Arg Pro Pro Arg Ser Pro Leu Ser Trp Gly Leu Leu Arg His Cys	230	235	240	2280
cac gac ggt acc aac ttc ttc act ggg gag ggc ggc gtg cgg ctg gac His Asp Gly Thr Asn Phe Phe Thr Gly Glu Ala Gly Val Arg Leu Asp	245	250	255	2328

tac atc tcc ctc cac agg aag ggt gcg cgc agc tcc atc tcc atc ctg Tyr Ile Ser Leu His Arg Lys Gly Ala Arg Ser Ser Ile Ser Ile Leu 260 265 270	2376
gag cag gag aag gtc gtc gcg cag cag atc cgg cag ctc ttc ccc aag Glu Gln Glu Lys Val Val Ala Gln Gln Ile Arg Gln Leu Phe Pro Lys 275 280 285	2424
ttc gcg gac acc ccc att tac aac gac gag gcg gac ccc ctg gtg ggc Phe Ala Asp Thr Pro Ile Tyr Asn Asp Glu Ala Asp Pro Leu Val Gly 290 295 300 305	2472
tgg tcc ctg cca cag ccg tgg agg gcg gac gtg acc tac gcg gcc atg Trp Ser Leu Pro Gln Pro Trp Arg Ala Asp Val Thr Tyr Ala Ala Met 310 315 320	2520
gtg gtg aag gtc atc gcg cag cat cag aac ctc cta ctg gcc aac acc Val Val Lys Val Ile Ala Gln His Gln Asn Leu Leu Leu Ala Asn Thr 325 330 335	2568
acc tcc gcc ttc ccc tac gcg ctc ctg agc aac gac aat gcc ttc ctg Thr Ser Ala Phe Pro Tyr Ala Leu Leu Ser Asn Asp Asn Ala Phe Leu 340 345 350	2616
agc tac cac ccg cac ccc ttc gcg cag cgc acg ctc acc gcg cgc ttc Ser Tyr His Pro His Pro Phe Ala Gln Arg Thr Leu Thr Ala Arg Phe 355 360 365	2664
cag gtc aac aac acc cgc ccg ccg cac gtg cag ctg ttg cgc aag ccg Gln Val Asn Asn Thr Arg Pro Pro His Val Gln Leu Leu Arg Lys Pro 370 375 380 385	2712
gtg ctc acg gcc atg ggg ctg ctg gcg ctg ctg gat gag gag cag ctc Val Leu Thr Ala Met Gly Leu Leu Ala Leu Leu Asp Glu Glu Gln Leu 390 395 400	2760
tgg gcc gaa gtg tcg cag gcc ggg acc gtc ctg gac agc aac cac acg Trp Ala Glu Val Ser Gln Ala Gly Thr Val Leu Asp Ser Asn His Thr 405 410 415	2808
gtg ggc gtc ctg gcc agc gcc cac cgc ccc cag ggc ccg gcc gac gcc Val Gly Val Leu Ala Ser Ala His Arg Pro Gln Gly Pro Ala Asp Ala 420 425 430	2856
tgg cgc gcc gcg gtg ctg atc tac gcg agc gac gac acc cgc gcc cac Trp Arg Ala Ala Val Leu Ile Tyr Ala Ser Asp Asp Thr Arg Ala His 435 440 445	2904
ccc aac cgc agc gtc gcg gtg acc ctg cgg ctg cgc ggg gtg ccc ccc Pro Asn Arg Ser Val Ala Val Thr Leu Arg Leu Arg Gly Val Pro Pro 450 455 460 465	2952
ggc ccg ggc ctg gtc tac gtc acg cgc tac ctg gac aac ggg ctc tgc Gly Pro Gly Leu Val Tyr Val Thr Arg Tyr Leu Asp Asn Gly Leu Cys 470 475 480	3000
agc ccc gac ggc gag tgg cgg cgc ctg ggc cgg ccc gtc ttc ccc acg Ser Pro Asp Gly Glu Trp Arg Arg Leu Gly Arg Pro Val Phe Pro Thr 485 490 495	3048

gca gag cag ttc cgg cgc atg cgc gcg gct gag gac ccg gtg gcc gcg Ala Glu Gln Phe Arg Arg Met Arg Ala Ala Glu Asp Pro Val Ala Ala 500 505 510	3096
gcg ccc cgc ccc tta ccc gcc ggc cgc ctg acg ctg cgc ccc gcg Ala Pro Arg Pro Leu Pro Ala Gly Gly Arg Leu Thr Leu Arg Pro Ala 515 520 525	3144
ctg cgg ctg ccc tgg ctt ttg ctg gtg cac gtg tgt gcg cgc ccc gag Leu Arg Leu Pro Ser Leu Leu Val His Val Cys Ala Arg Pro Glu 530 535 540 545	3192
aag ccg ccc ggg cag gtc acg cgg ctc cgc gcc ctg ccc ctg acc caa Lys Pro Pro Gly Gln Val Thr Arg Leu Arg Ala Leu Pro Leu Thr Gln 550 555 560	3240
ggg cag ctg gtt ctg gtc tgg tcg gat gaa cac gtg ggc tcc aag tgc Gly Gln Leu Val Leu Val Trp Ser Asp Glu His Val Gly Ser Lys Cys 565 570 575	3288
ctg tgg aca tac gag atc cag ttc tct cag gac ggt aag gcg tac acc Leu Trp Thr Tyr Glu Ile Gln Phe Ser Gln Asp Gly Lys Ala Tyr Thr 580 585 590	3336
ccg gtc agc agg aag cca tcg acc ttc aac ctc ttt gtg ttc agc cca Pro Val Ser Arg Lys Pro Ser Thr Phe Asn Leu Phe Val Phe Ser Pro 595 600 605	3384
gac aca ggt gct gtc tct ggc tcc tac cga gtt cga gcc ctg gac tac Asp Thr Gly Ala Val Ser Gly Ser Tyr Arg Val Arg Ala Leu Asp Tyr 610 615 620 625	3432
tgg gcc cga cca ggc ccc ttc tcg gac cct gtg ccg tac ctg gag gtc Trp Ala Arg Pro Gly Pro Phe Ser Asp Pro Val Pro Tyr Leu Glu Val 630 635 640	3480
cct gtg cca aga ggg ccc cca tcc ccg ggc aat cca tgaggctgtg Pro Val Pro Arg Gly Pro Pro Ser Pro Gly Asn Pro 645 650	3526
ctgagccccca gtgggttgca cctccaccgg cagtca gca gctgggctg cactgtgccc atgctgcctt cccatcaccc cctttgcaat atattttat attttaaaaa aaaaaaaaaa aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaagaattcc tgcagcccccgg gggatccact agttcttagag ggcccggtta aaccgcgtga tcagcctcga ctgtgccttc tagttcccg ccatctgtt tttggccctc ccccggtcct tccttgaccc tggaaagggtgc cactcccccgt gtccttcatt aaaaaaaaaa gggaaatttgcgatgcatttgc tgagtaggtg tcatttcatt ctgggggggtg ggggtggggca ggacagcaag ggggaggatt ggaaagacaa tagcaggcat gctggggatg cgggtgggctc tatggcttct gagggcgaaa gaaccagctg gggctcgaga gcttggcgta atcatggtca tagctgttct ctgtgtgaaa ttttatccg ctcacaatcc cacacaacat acgagccggaa agcataaaatgttgcatttgc gggtgcctaa tgagtgcgtt aactcacatt aattgcgttgcgttgcactgc cccgttcc gtcgggaaac ctgtcgttgc agtgcatttca atgaatcgcc caacgcgggg ggagaggcgg tttgcgtatt gggcgctt cccgttgcctt gtcactgac tcgctgcgtt cggcgatcc gtcgccggca gccgttatcgat ctcactcaaa ggcggtaata cgggttatcca cagaatcagg ggataacgcgaa ggaaagacaa tggatgcgtt aaggcccgaa aaggcccgaa accgtaaaaa ggccgcgttgc tggcggtttt tccataggctt cccggcccccgtt gacggatccatc acaaaaaatcg acgtcaagt cagagggtggc gaaacccgac aggactataa agataccagg cgttttcccc tggaaaggctcc ctggcgatcc tccctgttcc gacccctggccg cttaccggat acctgtccgc cttctccctt tcgggaaggcg tggcgatcc tcaatgttca cgtgttaggtt atctcgttgc ggtgttaggtc gttcgcttca agtggcgatc tggcgttca ccccccgttc agcccgaccg ctgcgcctta tcccgtaact atcgatccatc gtcacacccg gtaagacacccg acttatacgcc	3586 3646 3706 3766 3826 3886 3946 4006 4066 4126 4186 4246 4306 4366 4426 4486 4546 4606 4666 4726 4786

aotggcagca	gccactggta	acaggattag	cagagcgagg	tatgtaggcg	gtgctacaga	4846
gttcttgaag	tggtggccct	actacggcta	cactagaagg	acagtatttg	gtatctgcgc	4906
tctgctgaag	ccagttacct	tcggaaaaag	agttggtagc	tcttgatccg	gcaaacaac	4966
caccgcttgt	agcggtggtt	ttttgtttt	caagcagcag	attacgcga	gaaaaaaaaagg	5026
atctcaagaa	gatccttga	tctttctac	ggggctgac	gctcagtgg	acgaaaactc	5086
acgttaaggg	atttggtca	tgagattatc	aaaaaggattc	ttcacctaga	tccctttaaa	5146
ttaaaaatga	agtttaaat	caatctaaag	tatataatgg	taaacttgg	ctgacagtta	5206
ccaatgctt	atcagtggagg	cacctatctc	agcgatctgt	ctatccgtt	catccatagt	5266
tgctctactc	cccgtcggt	agataactac	gatacgggag	ggcttaccat	ctggccccag	5326
tgctgcaatg	ataccgcgag	acccacgctc	acggctcca	gatttatcag	caataaaacca	5386
gccagccgga	agggcccggc	gcagaagtgg	tcctgcaact	ttatccgcct	ccatccagtc	5446
tattaattgt	tgccgggaaag	ctagagtaag	tagttcgcca	gttaatagtt	tgcccaacgt	5506
tgttgccatt	gctacaggca	tcgtgggtgc	acgctcgctg	tttggtatgg	cttcattcag	5566
ctccggttcc	caacgatccas	ggcgagttac	atgatcccc	atgttgcga	aaaaagcggt	5626
tagctcttc	ggctctccga	tcgtgtgcag	agaatgggt	gcccgcgt	tatcaatcat	5686
ggttatggca	gcaactgcata	attctgttac	tgtcatgcca	tccgtaaat	gctttctgt	5746
gactggtag	tactcaacca	agtcattctg	agaatagtgt	atgcggcgac	cgagttgtc	5806
ttggccggcg	tcaatacggg	ataataccgc	gccccatagc	agaactttaa	aagtgtcat	5866
cattggaaaa	cgttcttcgg	ggcgaaaact	ctcaaggatc	ttaccgctgt	tgagatccag	5926
ttcgatgtaa	cccactctgt	cacccaactg	atcttcagca	tctttactt	tcaccaggct	5986
ttctgggtga	gcaaaaaacag	gaaggcaaaa	tgccgcaaaa	aaggaaataa	ggggcacacg	6046
aaaatgttga	atactcatac	tcttctttt	tcaatattat	tgaagcattt	atcagggtta	6106
ttgtctcatg	agcgatatac	tatttgaatg	tatttagaaa	aataaacaaa	taggggttcc	6166
gcgcacattt	ccccgaaaaag	tgccacctga	cgtc			6200

<210> 2

<211> 653

<212> PRT

<213> Homo sapiens

<400> 2

Met	Arg	Pro	Leu	Arg	Pro	Arg	Ala	Ala	Leu	Leu	Ala	Leu	Ala	Ser		
1					5				10			15				
Leu	Leu	Ala	Ala	Pro	Pro	Val	Ala	Pro	Ala	Glu	Ala	Pro	His	Leu	Val	
						20				25			30			
His	Val	Asp	Ala	Ala	Arg	Ala	Leu	Trp	Pro	Leu	Arg	Arg	Phe	Trp	Arg	
					35				40			45				
Ser	Thr	Gly	Phe	Cys	Pro	Pro	Leu	Pro	His	Ser	Gln	Ala	Asp	Gln	Tyr	
					50				55			60				
Val	Leu	Ser	Trp	Asp	Gln	Gln	Leu	Asn	Leu	Ala	Tyr	Val	Gly	Ala	Val	
					65				70			75			80	
Pro	His	Arg	Gly	Ile	Lys	Gln	Val	Arg	Thr	His	Trp	Leu	Leu	Glu	Leu	
					85				90			95				
Val	Thr	Thr	Arg	Gly	Ser	Thr	Gly	Arg	Gly	Leu	Ser	Tyr	Asn	Phe	Thr	
					100				105			110				
His	Leu	Asp	Gly	Tyr	Leu	Asp	Leu	Leu	Arg	Glu	Asn	Gln	Leu	Leu	Pro	
					115				120			125				
Gly	Phe	Glu	Leu	Met	Gly	Ser	Ala	Ser	Gly	His	Phe	Thr	Asp	Phe	Glu	
					130				135			140				
Asp	Lys	Gln	Gln	Gln	Val	Phe	Glu	Trp	Lys	Asp	Leu	Val	Ser	Ser	Leu	Ala
					145				150			155			160	
Arg	Arg	Tyr	Ile	Gly	Arg	Tyr	Gly	Leu	Ala	His	Val	Ser	Lys	Trp	Asn	
					165				170			175				
Phe	Glu	Thr	Trp	Asn	Glu	Pro	Asp	His	His	Asp	Phe	Asp	Asn	Val	Ser	
					180				185			190				
Met	Thr	Met	Gln	Gly	Phe	Leu	Asn	Tyr	Tyr	Asp	Ala	Cys	Ser	Glu	Gly	
					195				200			205				
Leu	Arg	Ala	Ala	Ser	Pro	Ala	Leu	Arg	Leu	Gly	Gly	Pro	Gly	Asp	Ser	
					210				215			220				
Phe	His	Arg	Pro	Pro	Arg	Ser	Pro	Leu	Ser	Trp	Gly	Leu	Leu	Arg	His	
					225				230			235			240	

Cys His Asp Gly Thr Asn Phe Phe Thr Gly Glu Ala Gly Val Arg Leu
 245 250 255
 Asp Tyr Ile Ser Leu His Arg Lys Gly Ala Arg Ser Ser Ile Ser Ile
 260 265 270
 Leu Glu Gln Glu Lys Val Val Ala Gln Gln Ile Arg Gln Leu Phe Pro
 275 280 285
 Lys Phe Ala Asp Thr Pro Ile Tyr Asn Asp Glu Ala Asp Pro Leu Val
 290 295 300
 Gly Trp Ser Leu Pro Gln Pro Trp Arg Ala Asp Val Thr Tyr Ala Ala
 305 310 315 320
 Met Val Val Lys Val Ile Ala Gln His Gln Asn Leu Leu Leu Ala Asn
 325 330 335
 Thr Thr Ser Ala Phe Pro Tyr Ala Leu Leu Ser Asn Asp Asn Ala Phe
 340 345 350
 Leu Ser Tyr His Pro His Pro Phe Ala Gln Arg Thr Leu Thr Ala Arg
 355 360 365
 Phe Gln Val Asn Asn Thr Arg Pro Pro His Val Gln Leu Leu Arg Lys
 370 375 380
 Pro Val Leu Thr Ala Met Gly Leu Leu Ala Leu Leu Asp Glu Glu Gln
 385 390 395 400
 Leu Trp Ala Glu Val Ser Gln Ala Gly Thr Val Leu Asp Ser Asn His
 405 410 415
 Thr Val Gly Val Leu Ala Ser Ala His Arg Pro Gln Gly Pro Ala Asp
 420 425 430
 Ala Trp Arg Ala Ala Val Leu Ile Tyr Ala Ser Asp Asp Thr Arg Ala
 435 440 445
 His Pro Asn Arg Ser Val Ala Val Thr Leu Arg Leu Arg Gly Val Pro
 450 455 460
 Pro Gly Pro Gly Leu Val Tyr Val Thr Arg Tyr Leu Asp Asn Gly Leu
 465 470 475 480
 Cys Ser Pro Asp Gly Glu Trp Arg Arg Leu Gly Arg Pro Val Phe Pro
 485 490 495
 Thr Ala Glu Gln Phe Arg Arg Met Arg Ala Ala Glu Asp Pro Val Ala
 500 505 510
 Ala Ala Pro Arg Pro Leu Pro Ala Gly Gly Arg Leu Thr Leu Arg Pro
 515 520 525
 Ala Leu Arg Leu Pro Ser Leu Leu Leu Val His Val Cys Ala Arg Pro
 530 535 540
 Glu Lys Pro Pro Gly Gln Val Thr Arg Leu Arg Ala Leu Pro Leu Thr
 545 550 555 560
 Gln Gly Gln Leu Val Leu Val Trp Ser Asp Glu His Val Gly Ser Lys
 565 570 575
 Cys Leu Trp Thr Tyr Glu Ile Gln Phe Ser Gln Asp Gly Lys Ala Tyr
 580 585 590
 Thr Pro Val Ser Arg Lys Pro Ser Thr Phe Asn Leu Phe Val Phe Ser
 595 600 605
 Pro Asp Thr Gly Ala Val Ser Gly Ser Tyr Arg Val Arg Ala Leu Asp
 610 615 620
 Tyr Trp Ala Arg Pro Gly Pro Phe Ser Asp Pro Val Pro Tyr Leu Glu
 625 630 635 640
 Val Pro Val Pro Arg Gly Pro Pro Ser Pro Gly Asn Pro
 645 650